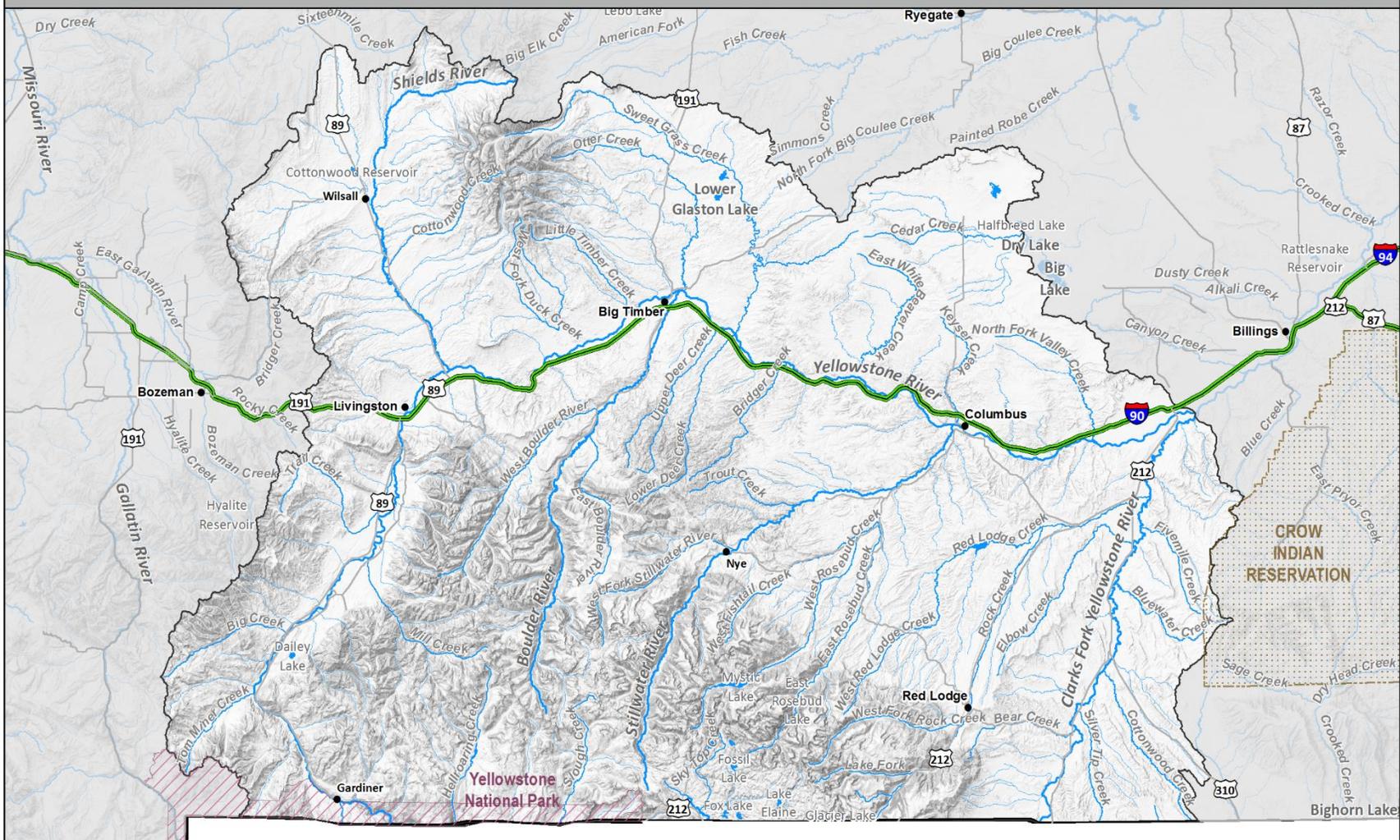


Upper Yellowstone River Drainage

MONTANA FWP



-  National Park Service
-  Tribal Lands
-  Drainage Boundary



Map Produced by:
 ASP - Geographic Data Services
 ISR 43965 - Nov 23, 2018



Administrative boundaries and FWP Lands data from Montana Fish, Wildlife & Parks, Helena, MT. Background Imagery from ESRI

Upper Yellowstone River Drainage

Physical Description

The upper Yellowstone River flows for more than 180 miles from the Montana/Wyoming border to the confluence of the Clarks Fork of the Yellowstone, through Park, Sweet Grass, Stillwater and Yellowstone counties. This section of river supports a quality coldwater fishery in relatively unaltered habitat. The upper Yellowstone River is free flowing, with no dams or river-wide diversion structures present. Most of the river flows through range and crop land traditionally managed for agriculture but faced with increasing pressure from residential development. Towns and cities along this reach of the Yellowstone include Gardiner, Livingston, Big Timber, Columbus, and Laurel. Significant recreational river use also comes from the population centers of Bozeman and Billings.

Several large tributaries flow into the upper Yellowstone River, including the Shields, Boulder, Stillwater and Clarks Fork rivers. Numerous smaller, coldwater tributaries flow into the river upstream from Reed Point, and a mix of coldwater streams from nearby mountains (Bridger Range, Bangtail Range, Gallatin Range, Crazy Mountains, Absaroka Range, and the Beartooth Mountains), and warmer water prairie streams enter the Yellowstone between Reed Point and Laurel. About 3,200 miles of fish-bearing stream occur within 433 streams within the drainage. Additionally, the drainage has 524 lakes, totaling 10,516 surface acres.

Fisheries Management

The upper Yellowstone River drainage supports a popular, high-quality wild trout fishery. In addition to the fishery of the main stem Yellowstone River, many tributaries provide high-quality wild trout fisheries. Above Big Timber, the Yellowstone River supports a popular sport fishery for introduced rainbow trout and brown trout and native Yellowstone cutthroat trout. Tributaries in this reach of the Yellowstone River support native Yellowstone cutthroat trout and introduced rainbow trout, brown trout, and brook trout fisheries. Downstream from Big Timber, the mainstem and tributaries of the Yellowstone support high-quality fisheries for introduced brown trout and rainbow trout, but native Yellowstone cutthroat trout abundances decline moving downstream, and only the occasional cutthroat trout is found in this reach. Other fish species in the upper Yellowstone River include native mountain whitefish, and burbot, introduced smallmouth bass, and several species of native and non-native nongame fish.

Angling in the upper Yellowstone River and tributaries is open all year, but cold weather and ice in winter and high stream flows and associated turbidities during runoff in the spring limit fishing for parts of the year. Based on the 2019 angler pressure survey, the combination of “trout” (rainbow trout, cutthroat trout, and brown trout) made up 91% of angler species preference in the river upstream of Big Timber. In the section from the confluence with the Clarks Fork to Big Timber, these same species made up 81% of the angler species preference. In 2019, angler pressure was highest in the reaches from Emigrant Bridge to Pine Creek and from Pine Creek to the Shields River with 28,776 and 27,166 angler days, respectively. Those two reaches were ranked 27th and 29th highest in the state for angler pressure.

Flowing waters in this drainage that support trout populations are managed as wild trout fisheries, emphasizing habitat protection and natural reproduction. Tributaries and their connections with the

Yellowstone River are critical for supporting natural reproduction, providing rearing habitat for juvenile trout, and delivering cool summer streamflow. Major tributaries include the Shields, Boulder, and Stillwater rivers, as well as their many tributaries. Additionally, several smaller tributaries flow directly into the Yellowstone including Mill, Big, and Sweet Grass creeks. Management of tributary connectivity for non-native brown trout and rainbow trout recruitment is balanced with occasional tributary isolation from the main stem river to promote native fish recovery including the upper Shields River, lower Deer Creek, Bad Canyon Creek, Mill Creek, and Big Creek.

The current wild trout management strategy replaced the previous hatchery-based management of trout about 50 years ago. Maintenance of healthy fish habitats for all life stages is needed for the strategy to succeed, and the predicted changes in streamflow and water temperatures are high priorities for fishery management in the drainage. Developing drought management plans with water users, watershed groups, canal companies, and other partners are important actions in the upper Yellowstone River, Shields River, Boulder River, Stillwater River, Clarks Fork of the Yellowstone River, and Rock Creek.

Several lowland lakes and reservoirs, and 524 high mountain lakes are part of the upper Yellowstone River drainage. Two of the lowland lakes, Cooney Reservoir and Dailey Lake, are managed for balanced walleye and trout fisheries via stocking, fishing regulations, and other strategies. Trout and walleye are stocked in Dailey Lake and trout are stocked in Cooney Reservoir. Both lakes have a wild yellow perch fishery and Cooney Reservoir has a wild burbot fishery.

High mountain lakes are managed to provide angler opportunity while minimizing disturbance to forest lands and designated wilderness. Other management includes promoting native Yellowstone cutthroat trout restoration and creating opportunities to catch rare and unique fish species. Fish species in the mountain lakes include Yellowstone cutthroat trout, rainbow trout, brook trout, golden trout, and Arctic grayling. Yellowstone cutthroat trout, golden trout and Arctic grayling are stocked in selected mountain lakes on a regular basis. LeHardy strain Yellowstone cutthroat trout from Wyoming are the brood source for most stocked Yellowstone cutthroat trout, and Sylvan Lake is the brood source for golden trout that are stocked throughout the state. An important objective of mountain lakes management is to avoid conflicting or compromising fisheries management in streams downstream of lakes in the same drainage. Sterile tiger muskie or tiger trout may be considered in lakes with stunted brook trout populations or other lakes. Stocking in lakes may cease in several lakes in the Crazy Mountains that have become inaccessible to anglers due to private land. FWP publishes [annual mountain lakes guide](#) with lake details, updated sampling data, and hiking and camping information for each fish-bearing lake in the Absaroka-Beartooth and Crazy Mountains.

Restoration of native Yellowstone cutthroat trout is a priority in the upper Yellowstone River drainage as this species has declined substantially in distribution and abundance within the drainage. The distribution of river-dwelling Yellowstone cutthroat trout is largely restricted to the river upstream of Springdale, and Yellowstone cutthroat trout are most abundant in the upper reaches in Paradise Valley. Resident Yellowstone cutthroat trout are present throughout most tributaries in the upper Yellowstone River drainage. Strategies to protect and restore Yellowstone cutthroat trout populations include maintaining connectivity with spawning tributaries, limiting angler harvest in the upper drainage, and isolating the species using fish passage barriers to protect it from non-native trout in some tributaries throughout the historical range.

Conservation of fluvial Yellowstone cutthroat trout in the upper Yellowstone River involves several components. Catch-and-release regulations instituted in the 1980s reduced harvest. Several key spawning tributaries have water leases that maintain streamflow during sensitive incubation, emergence, and outmigration life stages. Investment in fish passage has provided fluvial adults access to spawning tributaries that were inaccessible for decades. Screening irrigation diversions to prevent entrainment of spawning adults, fry, and fluvial adults seeking cool temperatures in tributaries during summer months have potential to protect additional Yellowstone cutthroat trout.

Conservation in tributary watersheds, which are prioritized for Yellowstone cutthroat trout conservation given their projected resilience to warmer temperatures and variable flows, focuses on quality habitats and flows. The high elevation of the upper Yellowstone River drainage keeps these streams relatively cool, whereas warming reduces the suitability of streams to support Yellowstone cutthroat trout at lower elevations.

Securing populations from pressures of non-native trout entails protecting or reestablishing populations upstream of constructed or natural barriers. Numerous streams have been reclaimed for Yellowstone cutthroat trout by removing non-natives through mechanical and chemical means. Habitat restoration and implementation of best management practices for agriculture and other land uses are other key tools in Yellowstone cutthroat trout conservation in tributary streams and watersheds.

Although catch-and-release regulations are protective of Yellowstone cutthroat trout in Yellowstone River, tributary populations downstream of Pine Creek Bridge are managed as a sport fishery with Yellowstone cutthroat trout part of an angler's daily trout limit. Allowing some level of harvest has helped build public support for cutthroat trout restoration projects as many anglers enjoy opportunities to catch and harvest native fish. Protected or restored populations of Yellowstone cutthroat trout can withstand the level of harvest pressure they are likely to experience.

Conservation planning for Yellowstone cutthroat trout in Montana includes strategies for specific streams and watersheds and general goals for conservation. Under the [conservation agreement for cutthroat trout conservation in Montana](#), the highest priority is to protect the remaining populations, especially genetically unaltered populations. Reestablishing extirpated populations and expanding the distribution of Yellowstone cutthroat trout into protected waters upstream of natural barriers if other aquatic organisms are not harmed by presence of fish are other conservation priorities. The potential for fish translocations to harm invertebrate or amphibian populations is remote, as assemblages in Montana have coevolved with cutthroat trout, and currently fishless waters have unobstructed gene flow with fish-bearing waters, which does not provide the isolation needed to lose tolerance of coexisting with fish. Nevertheless, policy requires sampling and review of existing data to identify waters with amphibian and invertebrate species of concern and consider the potential for fish translocations to harm these species. Combined, protection, reestablishment, and expansion into currently fishless waters will offset losses of Yellowstone cutthroat trout in connected waters where removal of non-natives is infeasible or undesirable.

Specific conservation strategies apply to Yellowstone cutthroat trout in the upper Yellowstone River drainage. On the mainstem Shields River, the Chadbourne diversion dam blocks invasion of rainbow trout, and genetically unaltered or slightly altered Yellowstone cutthroat trout remain widely distributed in the Shields River watershed. The protection from rainbow trout afforded by this diversion dam and the watershed's location at the northernmost extent of the historical distribution at relatively high

elevation makes the Shields River watershed a basin-level stronghold for Yellowstone cutthroat trout. Nevertheless, brook trout, brown trout, and hybridization with rainbow trout threaten the watershed's Yellowstone cutthroat trout and will prevent restoration of Yellowstone cutthroat trout to all historically occupied reaches in the Shields drainage. Therefore, a long-term goal of maintaining Yellowstone cutthroat trout in 80% of the historical habitat in the Shields River watershed, including expansion into previously unoccupied but suitable habitat as is available and feasible.

The remaining portion of the upper Yellowstone River drainage has substantial connectivity to waters supporting popular and economically important sport fisheries managed for non-native rainbow trout, brown trout, and brook trout, which are generally incompatible with Yellowstone cutthroat trout with some exceptions. The long-term goal for the upper Yellowstone River drainage outside of the portion of the Shields River upstream of the Chadbourne diversion is 50% occupancy of conservation populations within suitable habitat. The last estimate of habitat occupied by conservation populations was 66% of historical distribution; however, brook trout expansion and spread of rainbow trout genes make maintaining this level of occupancy infeasible. Protection of remaining conservation populations and restoration where possible remain conservation priorities.

Habitat

Although it is the longest undammed river in the contiguous United States, and much of the river remains unaltered, significant habitat changes have altered portions of the upper Yellowstone River. Notable development along the Yellowstone River corridor includes the construction of a major railroad and numerous roads, including county roads, state highways and a federal interstate highway. These developments have reduced channel migration and floodplain connectivity. Angular rock or concrete rip rap to protect roads, bridges, homes, and farmland or ranchland restrict the natural river processes resulting in degraded instream habitats. Significant development and population growth is ongoing and is accelerating along the Yellowstone River and many of its tributaries, particularly in the form of residential housing, which may further restrict natural river form and function and negatively impact habitat.

Irrigation diversions and ditches in the upper Yellowstone River drainage entrain resident trout, fluvial spawners, and fry. Many of these fish swim back to the stream when ditches are shut down, but many others become stranded and die. Fluvial Yellowstone cutthroat trout fry are especially vulnerable as they are weak swimmers and unable to return to streams after being entrained. Fish screens are uncommon in the area due to their high cost and need for maintenance, troubles with functionality, and general lack of acceptance by the ranching community. Other alternatives to fish screens are being explored as potential means to reduce entrainment of fish into irrigation canals.

Habitat degradation occurs throughout the upper Yellowstone River drainage, and FWP and partners have worked to restore riparian health and function. In June 2022, a historic flood event occurred in the Yellowstone, Stillwater, and Clarks Forks rivers and recovery efforts including habitat restoration are ongoing. The Shields Valley Watershed Group developed a watershed restoration plan to address sediment loading from bank erosion and identifies restoration priorities. Outside of the Shields River watershed, FWP will continue working with interested landowners on habitat restoration projects.

Alterations in water quality relate mostly to the irrigation season and warming related to low flows and higher water temperatures. Generally, water quality in the upper Yellowstone River is not impaired by

other pollutants such as nutrients or heavy metals. A train derailment in June 2023 released molten sulfur and asphalt into the river just downstream of Reed Point. FWP is working with partner agencies to monitor water quality and fish health. Additionally, nutrient loading from septic systems in Wilsall results in nuisance algal blooms in the Shields River in some years, but a planned water treatment system will eliminate this source.

Habitat and water quality relate to fish diseases that occur in the upper Yellowstone River drainage. In the last decade, summer water temperatures have increased, and late summer flows have decreased. These specific changes are likely increasing the prevalence of whirling disease and proliferative kidney disease (PKD) in the upper Yellowstone. Whirling disease has been confirmed in rainbow and Yellowstone cutthroat trout in the middle and upper portion of the drainage, but has not been found in the lower end, despite intensive testing. PKD has been confirmed in rainbow, brown, and Yellowstone cutthroat trout and mountain whitefish. Variable levels of mortality have occurred in mountain whitefish from Springdale upriver to near the Yellowstone National Park (YNP) boundary since 2016; however, trout mortality remains low.

Current Management Issues

Recreational Floating and Fishing Pressure

Though angling use was stable over the past decade, the use of boats on the Yellowstone and Stillwater rivers has markedly increased in recent years. In addition, angling pressure on the Yellowstone has shifted downstream, with anglers from Bozeman and Livingston travelling greater distances to avoid crowding. Public concern has grown over outfitters and guides who are not locally based beginning to operate farther downstream on the Yellowstone, Boulder, and Stillwater rivers, and nonprofits are monitoring boat use on the Yellowstone River. Though overall use in the lower end of this reach of the Yellowstone drainage is relatively low, the current trend could indicate an increase in the future. Recreational use by nonanglers is increasing in the upper Yellowstone River. The effect of COVID-19 has seen large increases in recreational use of the river and fishing access sites. Local groups have begun to look at river use and its potential social and biological impacts.

Disease Outbreaks

Since 2016, the Yellowstone River above Springdale has experienced annual mountain whitefish kills as result of PKD outbreaks. Fish kills have varied in extent of mortality from tens of thousands in 2016 to less than a hundred in 2021. The PKD parasite has been confirmed in trout occupying the Yellowstone River but very few trout mortalities have been confirmed during these events. FWP will continue to monitor disease outbreaks in the upper Yellowstone and identify impacts to fish populations. The U.S. Geological Survey (USGS) is using eDNA sampling to track the presence of the PKD parasite in the upper Yellowstone River to predict future disease outbreaks.

Clarks Fork of the Yellowstone River Diversion Dams

Orchard and Whitehorse diversion dams on the Clarks Fork Yellowstone River restrict fish movements. Both dams span the entire channel and impede upstream movement. These ditches also entrain many

fish. Since 2019, FWP has sampled upstream and downstream of Orchard and Whitehorse diversion dams to determine if tagged fish of all present species are able to pass upstream of the diversion. Results showed some passage at both dams of all species, except for burbot. Despite some fish passage, the dams blocked substantial numbers of fish. Additionally, the ditches associated with the diversions have been sampled and revealed many fish entrained in the ditches. FWP is currently working with water users to improve fish passage and decrease entrainment on both diversions. Improving fish passage on these diversions so that burbot would be able to migrate upstream would open a substantial amount of inaccessible habitat for burbot. Some of this work will be funded through Natural Resource Damage Program funds associated with the 2011 Yellowstone River oil spill near Laurel.

Smallmouth Bass

Invasion and illegal introductions of smallmouth bass have caused concern for trout fisheries in the Shields and Yellowstone River watersheds. Smallmouth bass are not native to this area, and an established population could pose threats to fisheries of the upper Yellowstone River drainage. Smallmouth bass have been confirmed in Cottonwood Reservoir in the upper Shields River drainage. These fish were illegally introduced to this on-stream reservoir and pose a threat to the wild trout fishery, including Yellowstone cutthroat trout, in the Shields River drainage. Extreme drawdown of the reservoir and warm water temperatures during the drought in 2021 appears to have removed the population in the reservoir. However, an angler caught a smallmouth bass in the Shields River near the mouth of Rock Creek in the summer of 2021. This incident is cause for concern that smallmouth bass from the reservoir occupy the Shields River.

Smallmouth bass occupy the lower Yellowstone River but have also been reported throughout the upper Yellowstone drainage. Anglers have reported finding smallmouth bass in three locations on the upper Yellowstone River in the past seven years: two smallmouth bass were caught at the Highway 89 bridge downstream of Livingston, and one near Emigrant. An angler caught a smallmouth bass on February 19, 2022, in the Gardner River near the confluence with the Yellowstone River, just outside of Yellowstone National Park.

Special fishing regulations were developed to address the threat smallmouth bass pose to the wild trout fisheries in the upper Yellowstone and Shields rivers. A special management regulation for mandatory kill and reporting of smallmouth bass was implemented from Springdale to the Yellowstone National Park boundary. Over the next four years, FWP will assess if expanded catch-kill-reporting or liberalized harvest regulations downstream to Reed Point are warranted. New emergency regulations could be proposed by FWP if smallmouth bass abundance, especially juveniles, increases significantly near Reed Point in the next several years. A similar regulation is in place for the Shields River basin. Smallmouth bass in the upper Yellowstone drainage will be evaluated through angler reports, fish sampling, and eDNA. However, low population abundance and difficulty capturing smallmouth bass using electrofishing make angler harvest and reporting the best tool to monitor smallmouth bass currently.

Priority Drought Waters

Trout populations have been and likely will continue to be affected by high water temperatures and low flows in the upper Yellowstone River and its tributaries during summer drought (Table 2.34-1).

Classification, criteria, and measurement apply to the entire reach; however, implementation of restrictions may occur in all or parts of individual reaches depending on temperature, flow, and angling pressure. Although conservation of Yellowstone cutthroat trout is a high priority in the drainage, most angling pressure occurs on non-native sport fishing waters downstream of Gardiner where Yellowstone cutthroat trout are the smallest portion of the salmonid fishery. As such, priority drought waters in the upper Yellowstone are based on non-native salmonid criteria for drought related restrictions and closures. The majority of Yellowstone cutthroat trout populations in the upper Yellowstone River are located in upstream areas that have not historically required restrictions or closures due to low flows and higher water temperatures. If necessary, these restrictions would be applied to these areas should conditions reach a level where they would negatively impact Yellowstone cutthroat trout as has been observed in westslope cutthroat trout fisheries west of the Continental Divide.

Table 2.34-1: Designated hoot owl reaches where drought related fishing restrictions and closures due to fishing pressure, high water temperatures, and/or low flows are expected to be implemented. Drought related restrictions and closures may also be placed on waters not listed here or in shorter reaches within the boundaries listed below.

Waterbody	Reach	Classification	Criteria
Upper and middle Yellowstone River	Hwy 212 bridge in Laurel to Yellowstone National Park boundary (RM 382 to 558)	Non-native salmonid sport fishery	<ul style="list-style-type: none"> • Daily maximum river temperature reaches or exceeds 73°F for 3 consecutive days or stream flows fall below the 5th percentile of daily mean values for the date. • Measurements relevant for criteria will occur at USGS gage 06191500 at Corwin Springs, USGS gage 06192500 at Livingston, USGS gage 06195750 at Springdale, and USGS gage 06195950 at Big Timber. Measurements at these gages are representative of temperatures and discharge throughout the upper Yellowstone drainage. • Shifts in angling pressure due to restrictions or closures on other waterbodies that can adversely impact the fishery.
Shields River	Confluence with the Yellowstone River to U.S. Forest Service (USFS) Crandall Creek bridge (RM 0 to 60.1)	Non-native salmonid sport fishery	<ul style="list-style-type: none"> • Daily maximum river temperature reaches or exceeds 73°F for 3 consecutive days or stream flows fall below the 5th percentile of daily mean values for the date. • Measurements relevant for criteria will occur at USGS gage 06195600 Shields River near Livingston. Temperature measurements will also depend on portable temperature recorders throughout the basin. • Lifting of angling restrictions may be delayed until adequate flows are present

			to provide adequate fish cover, typically at least 50 cfs at the Shields gage.
Stillwater River	Confluence with the Yellowstone River to Absaroka FAS (RM 0 to 13)	Non-native salmonid sport fishery	<ul style="list-style-type: none"> Daily maximum water temperature reaches or exceeds 73°F for 3 consecutive days or stream flows fall below the 5th percentile of daily mean values for the date. Measurements for relevant criteria will occur at USGS gage 06205000 Stillwater River near Absarokee.

Chronic Dewatering

Many tributaries in the upper Yellowstone are chronically dewatered, which negatively impacts fish habitats. The Clarks Fork of the Yellowstone is annually dewatered and likely negatively impacts the fishery. Rock Creek is also annually dewatered, especially in its middle reaches between Roberts and Joliet. FWP will continue monitoring and identify opportunities to improve flows during critical periods, especially in the late summer months.

FWP holds water leases for instream flows to maintain flows in some tributaries during critical periods. Water projects include:

Big Creek – FWP holds three leases for instream flow rights in Big Creek. Each lease is for a ten-year term and have expiration dates of May 1, 2024, May 1, 2029, and April 15, 2030. Monitoring of stream flows along with providing up-to-date measurements to the water users so the stream can be managed to meet the instream flow requirements is completed annually.

Cedar Creek – FWP holds one lease for instream flow rights in Cedar Creek. The lease is for a ten-year term and has an expiration date of September 20, 2025. Monitoring of stream flows along with providing up-to-date measurements to the water users so the stream can be managed to meet the instream flow requirements is completed annually.

Mulherin Creek – FWP holds one lease for instream flow rights in Mulherin Creek (locally known as Mol Heron Creek). The lease is for a ten-year term and has an expiration date of December 31, 2028. Monitoring of stream flows along with providing up-to-date measurements to the water users so the stream can be managed to meet the instream flow requirements is completed annually.

Locke Creek – FWP holds one lease for instream flow rights in Locke Creek. The lease is for a 30-year term and has an expiration date of December 14, 2031. Monitoring of stream flows along with providing up-to-date measurements to the water users so the stream can be managed to meet the instream flow requirements is completed annually.

Dailey Lake – FWP is currently working on completing a water share agreement with an adjoining water user. This agreement will define how water will be managed between the two users and ensure that the fishery in Dailey Lake is not put at risk.

Hydropower Mitigation Program

NorthWestern Energy (NEW) and FWP have a cooperative agreement to monitor waters associated with the Mystic Lake Hydroelectric Project on West Rosebud Creek and Mystic Lake. West Rosebud Creek is sampled via electrofishing in two sections; while West Rosebud Lake, and Mystic Lake are sampled via gillnetting. These fisheries monitoring surveys are completed every three years. Additionally, fall redd counts are completed on West Rosebud Creek every two years.

Fish Removal Projects

Several fish removal projects related to Yellowstone cutthroat trout conservation are proposed in the upper Yellowstone drainage. Removal projects include chemical and mechanical fish removals of non-native fish that pose a threat to Yellowstone cutthroat trout in some tributaries. See Appendix A for additional discussion of fish removal projects and projects proposed statewide. Removal projects planned in the upper Yellowstone drainage are discussed below.

Shields River: Chemical removal of brook trout from the upper Shields River within the Custer Gallatin National Forest is underway, with a pilot study started in 2022, and full stream treatment expected in 2023 and 2024. Brook trout were established in this area by the late 2000s during a period of extended drought that may have made conditions more favorable in these otherwise harsh headwaters. In preparation for removal of brook trout, a barrier was constructed at the U.S. Forest Service (USFS) boundary. This project will secure 26 miles of connected habitat for Yellowstone cutthroat trout that is free from non-native species and received commission approval at its June 2021 meeting.

Mill Creek Meadow Spring Creek: Mill Creek Meadow Spring Creek is a small spring creek that flows through a meadow upstream of the USFS boundary on Mill Creek. Its short length is largely on private land, although its lowest portion is on the Custer Gallatin National Forest. FWP and Trout Unlimited began removing brook trout from this small spring creek using electrofishing and trap nets in 2022. This action will be protective of Yellowstone cutthroat trout through the larger area, as brook trout invade in pulses when environmental conditions are conducive to their expansion. Mechanical removals are expected to extirpate brook trout from the spring creek in three to four years. This project received commission approval at its December 2021 meeting.

Buffalo Creek: Non-native rainbow trout in Buffalo Creek have been identified as the primary source of hybridization in the Lamar River watershed. A piscicide treatment is planned to remove rainbow trout and restock with native Yellowstone cutthroat trout. Fishing regulations were changed in 2021 to remove harvest limits and add a mandatory kill on rainbow trout in Buffalo Creek and its tributaries. This treatment was slated to begin summer 2022 but was delayed by a court injunction. FWP will continue work with the USFS and National Park Services (NPS) to implement this treatment. This project received commission approval at its June 2021 meeting.

Brushy Fork Willow Creek: Brushy Fork Willow Creek contains a likely aboriginal population of Yellowstone cutthroat trout. Since 2004, non-native brook trout have been mechanically

removed from the stream. In 2010, brown trout were discovered and have also been removed. This project received commission approval at its June 2021 meeting and FWP will continue to remove non-native brook trout and brown trout. Future efforts include identifying a suitable location for a fish barrier followed by additional non-native species removal.

Upper Deer Creek: Upper Deer Creek contains a wild population of Yellowstone cutthroat trout along with non-native brown trout and brook trout. Past efforts to identify a suitable location to construct a fish barrier have yielded some results; however, further investigation needs to be completed. Fish distribution and habitat suitability assessments have been completed, which indicate insufficient fishless habitat exists to warrant expanding the Yellowstone cutthroat trout population without a full restoration of the system. Future efforts include identifying a suitable location to construct a fish barrier, which may occur on private land if no suitable location on USFS land is found. Once a barrier is constructed, a subsequent non-native species removal effort would be completed.

Soda Butte Creek: Soda Butte Creek has been an ongoing project since 2010. Brook trout were mechanically removed using electrofishing until FWP, Yellowstone National Park, USFS, and Wyoming Fish & Game completed a rotenone project in 2015 and 2016. Prior to the treatment, Yellowstone cutthroat trout were salvaged and reintroduced into the stream. FWP will remove any brook trout captured during monitoring efforts in Soda Butte Creek and potentially expand removal efforts if needed.

Mill Creek Fish Barrier

A rock barrier constructed in 1996 has impeded invasion of rainbow trout into upper Mill Creek; however, it is not a full barrier. A record flood in 2022 further degraded this barrier, and it is likely more passable. Continued hybridization with rainbow trout and the presence of brook trout upstream of the existing barrier have prompted plans for an additional barrier in the Mill Creek watershed to protect nonhybridized Yellowstone cutthroat trout that remain in the headwaters. The Custer-Gallatin National Forest is the lead on barrier design and construction; however, FWP will assist and advise on barrier location and design. Completion of design is likely by 2023, and funds for construction have been secured. Once the remaining Yellowstone cutthroat trout have been secured, efforts to improve or replace the lower barrier may be explored.

Chadbourne Diversion Retrofit

The Chadbourne irrigation diversion is about eight river miles from the Shields River confluence with the Yellowstone River. This stream-spanning structure has been instrumental in preventing expansion of rainbow trout into this stronghold for Yellowstone cutthroat trout. By the 2010s, the 100-year-old structure was in danger of failing, and FWP, along with multiple partners, repaired and retrofitted the diversion to prevent its failure and add elements to block upstream movements of rainbow trout. However, hydraulics on the right side of the barrier likely allow passage of rainbow trout. A wingwall similar to the other side of the structure will be constructed to eliminate the hydraulics rainbow trout use to leap the diversion, and increase the height of the structure there is scheduled for construction in fall of 2022.

Rainbow Lakes Genetic Swamping

The Rainbow Lakes are a series of lakes in the headwaters of the Boulder River that were stocked with non-native rainbow trout in the mid-1900s. After the stocking, rainbow trout established a self-sustaining population in the lakes and downstream habitats. To restore native Yellowstone cutthroat trout, rainbow trout were removed starting in 2011. Those efforts included gillnetting in 2011 and 2012 followed by stocking of large numbers of Yellowstone cutthroat trout in each ensuing year to genetically swamp rainbow trout. Stocking of Yellowstone cutthroat trout in the lakes will continue along with sampling coordinated with FWP geneticists to evaluate the success of the swamping efforts.

Bad Canyon Creek Fish Barrier

Bad Canyon Creek has a restored population of Yellowstone cutthroat trout upstream of a natural fish barrier that was modified in 2002. Rotenone treatments were conducted in 2002 and 2003 to remove brown trout. The barrier had multiple modifications over the last 20 years including adding bentonite grout to plug holes. A permanent modification likely needs to be made to ensure the protection of the Yellowstone cutthroat trout population. This work will be started in 2023.

FISHERIES MANAGEMENT DIRECTION FOR THE UPPER YELLOWSTONE RIVER DRAINAGE

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Yellowstone River (YNP to Pine Creek bridge)	97 miles	Rainbow trout, Brown trout	Wild	Restrictive regulations	Manage harvest to support quality and sustained angling opportunity. Maintain present numbers and sizes.
		Yellowstone cutthroat trout (N)	Wild	Restrictive regulations	Maintain catch-and-release fishery to maintain the current population.
		Mountain whitefish (N)	Wild	General	Maintain current populations.
		Smallmouth Bass	Wild/Illegal introduction	Suppression	Maintain catch, kill, and report regulations to reduce threat to wild trout fishery and learn more about population abundance and status. Adjust management strategies when needed.
Habitat needs and activities: Maintain current habitat.					
Shields River and tributaries (upstream of Chadbourne Diversion)	54 miles in mainstem	Rainbow trout	Wild	Suppression	Remove where possible to prevent hybridization with Yellowstone cutthroat trout.
		Brown trout	Wild	General	Determine level of threat of brown trout to Yellowstone cutthroat trout. If needed reduce numbers/prevent invasion where Yellowstone cutthroat trout are potentially impacted.
		Yellowstone cutthroat trout (N)	Wild	Conservation	Allow limited harvest of Yellowstone cutthroat trout to maintain the population and provide angler opportunity for harvest.
		Brook trout	Wild	Suppression	Remove where possible to protect Yellowstone cutthroat trout.
		Mountain whitefish (N)	Wild	General	Maintain current populations.

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
		Smallmouth Bass	Illegal introduction	Suppression/Removal	Mandatory catch, kill, and report regulations to reduce threat to wild trout fishery and learn more about population abundance and status.
Habitat needs and activities: Work to improve stream flow and water temperatures. Complete modification of Chadbourne Diversion to become a complete fish passage barrier. Complete brook trout removal projects to secure Yellowstone cutthroat trout populations in the basin.					
Shields River and tributaries (downstream of Chadbourne Diversion)	11 miles in mainstem	Rainbow trout, Brown trout	Wild	General	Manage harvest to support quality and sustained angling opportunity. Maintain present abundances and sizes. Consider increasing angler harvest to reduce abundance to maintain fish growth.
		Yellowstone cutthroat trout (N)	Wild	Restrictive regulations	Maintain catch-and-release fishery to maintain the current population.
		Mountain whitefish(N)	Wild	General	Maintain current populations.
		Smallmouth bass	Wild/Illegal introduction	Suppression/Removal	Mandatory catch, kill, and report regulations to reduce threat to wild trout fishery and learn more about population abundance and status.
Habitat needs and activities: Work to improve stream flow and water temperatures. This reach is chronically dewatered. Implement watershed restoration plan to improve habitat and decrease sediment loading.					
Yellowstone River tributaries (YNP to Pine Creek bridge)	1,058 miles	Rainbow trout, Brown trout	Wild	General	Reduce abundance/prevent invasion where Yellowstone cutthroat trout are potentially impacted. Maintain sport fishery in other areas.
		Yellowstone cutthroat trout (N)	Wild	Restrictive regulations	Maintain catch-and-release fishery to maintain the current populations.
		Mountain whitefish(N)	Wild	General	Maintain current populations.

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
		Brook trout	Wild	General	Reduce abundance/prevent invasion where Yellowstone cutthroat trout are potentially impacted. Maintain sport fishery in other areas.
		Smallmouth bass	Wild/Illegal introduction		Monitor species composition in tributaries and implement management strategies based on Unauthorized Placement of Fish ARM.
Habitat needs and activities: Improve habitat (riparian, in-stream, and connectivity) and ensure stream flow in dewatered systems.					
Yellowstone River (Pine Creek bridge to Springdale)	35 miles	Rainbow trout, Brown trout	Wild	Restrictive regulations	Manage harvest to support quality and sustained angling opportunity. Maintain present abundance and sizes.
		Yellowstone cutthroat trout (N)	Wild	Restrictive regulations	Allow limited harvest of Yellowstone cutthroat trout to maintain the population and provide angler opportunity for harvest.
		Mountain whitefish (N)	Wild	General	Maintain current populations.
		Smallmouth bass	Wild/Illegal introduction	Suppression	Maintain catch, kill, and report regulations to reduce threat to wild trout fishery and learn more about population abundance and status. Adjust management strategies when needed.
Habitat needs and activities: Maintain current habitat.					
Dailey Lake	206 acres	Yellowstone cutthroat trout (N), Rainbow trout	Hatchery/Wild	Put-Grow-and-Take	Monitor recruitment to spring gillnets and adjust stocking as necessary to maintain size and age classes.
		Yellow perch	Wild	General	Monitor size and recruitment to spring gillnets.
		Walleye	Hatchery/Wild	Put-Grow-and-Take	Monitor recruitment to spring gillnets and adjust stocking as necessary to maintain size and age classes.

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Habitat needs and activities: Work to maintain adequate lake elevations and balance trout and warmwater fisheries through stocking plans.					
Yellowstone River (Springdale to Clarks Fork of the Yellowstone)	95 miles	Rainbow trout, Brown trout	Wild	General	Manage harvest to support quality and sustained angling opportunity. Maintain present abundance and sizes.
		Yellowstone cutthroat trout (N)	Wild	General	Allow limited harvest of Yellowstone cutthroat trout to maintain the population and provide angler opportunity for harvest.
		Mountain whitefish(N)	Wild	General	Maintain current population. Attempt to better monitor population abundance, trends, and angler harvest.
		Burbot (N)	Wild	General	Maintain current population. Learn more about population abundance, distribution, and habitat use. Attempt to enhance population and manage for limited harvest.
		Smallmouth bass	Wild	Liberal regulations	Allow harvest of 10 daily and in possession.
Habitat needs and activities: Improve habitat to support ecosystem function and fish production.					
Boulder River and tributaries	65 miles in mainstem and 168 miles in tributaries	Rainbow trout	Wild	General	Downstream from Hawley Creek: manage harvest to support high quality angling opportunity. Upstream from Hawley Creek: reduce abundances to benefit Yellowstone cutthroat trout.
		Brown trout	Wild	General	Manage harvest to support high quality angling opportunity.
		Yellowstone cutthroat trout (N)	Wild	General	Allow harvest as part of combined trout limit for this drainage. Protect populations via habitat projects and removal of non-natives where

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
		<p>Mountain whitefish(N)</p> <p>Brook trout</p>	<p>Wild</p> <p>Wild</p>	<p>General</p> <p>Liberal regulations/ Suppression</p>	<p>opportunities exist, especially in Rainbow Lakes system. Manage for large, interconnected genetically unaltered population upstream of waterfall barrier near Hawley Creek.</p> <p>Maintain current population.</p> <p>Reduce abundances/prevent invasion where Yellowstone cutthroat trout are potentially impacted. Manage for sport fishery with opportunity for high levels of harvest in other areas.</p>
<p>Habitat needs and activities: Reduce entrainment of trout in irrigation ditches. Protect existing trout spawning habitat.</p>					
<p>Stillwater River and tributaries</p>	<p>70 miles in mainstem and 451 miles in tributaries</p>	<p>Rainbow trout, Brown trout</p> <p>Yellowstone cutthroat trout (N)</p> <p>Mountain whitefish (N)</p> <p>Brook trout</p>	<p>Wild</p> <p>Wild</p> <p>Wild</p> <p>Wild</p>	<p>General</p> <p>General/ Conservation</p> <p>General</p> <p>General/Suppression</p>	<p>Manage harvest to support high quality angling opportunity. Reduce abundance/prevent invasion where Yellowstone cutthroat trout are potentially impacted.</p> <p>Allow harvest as part of combined trout limit for this drainage. Protect populations via habitat projects and removal of non-natives where opportunities exist. Consider establishing new populations where opportunities exist.</p> <p>Maintain current population.</p> <p>Reduce abundance/prevent invasion where Yellowstone cutthroat trout are potentially impacted. Manage for sport fishery with opportunity for high levels of harvest in other areas.</p>

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Habitat needs and activities: Reduce entrainment of trout in irrigation ditches. Protect existing trout spawning habitat.					
Clarks Fork of the Yellowstone and tributaries (except Rock Creek)	141 miles in mainstem and 229 miles in tributaries	Rainbow trout, Brown trout	Wild	Wild	Manage harvest to support quality angling opportunity.
		Yellowstone cutthroat trout (N)	Wild	General	Allow harvest as part of district-wide combined trout limit.
		Mountain whitefish (N)	Wild	General	Maintain current population. Attempt to better monitor population abundance, trends, and angler harvest.
		Brook trout	Wild	General	Manage for sport fishery with opportunity for high level of harvest.
		Burbot(N)	Wild	General	Maintain current population. Learn more about population abundance, distribution, and habitat use.
		Arctic grayling	Wild	General	Maintain current population. Search for evidence of self-sustaining population in upper tributary reaches.
Habitat needs and activities: Improve fish passage over irrigation diversion dams and reduce entrainment in ditches. Minimize dewatering of lower reaches during drought years. Improve burbot habitat.					
Rock Creek and tributaries	59 miles in mainstem and 274 miles in tributaries	Rainbow trout, Brown trout	Wild	Wild	Manage harvest to support high quality angling opportunity. Reduce numbers/prevent invasion where Yellowstone cutthroat trout are potentially impacted
		Yellowstone cutthroat trout (N)	Wild	Conservation	Allow harvest as part of district-wide combined trout limit. Continue to protect Brushy Fork Willow Creek population. Indigenous

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
		Brook trout	Wild	General/ Suppression	populations will take top priority. Consider establishing new populations where opportunities exist. Reduce abundance where Yellowstone cutthroat trout are present. Manage for sport fishery in other areas.
Habitat needs and activities: Improve fish passage over irrigation diversion dams and reduce entrainment in ditches. Protect existing trout spawning and rearing habitat. Minimize large scale human-caused stream channel alterations. Minimize dewatering of certain stream reaches during drought years.					
Cooney Reservoir	733 acres	Rainbow trout	Hatchery	Put-Grow-and-Take	Evaluate stocking and harvest regulations to optimize number stocked, size of fish and angler catch rate throughout the year.
		Walleye	Wild	Wild/General	Continue monitoring to ensure adequate natural reproduction to support fishery. Stock if natural reproduction is inadequate. Maintain balance between walleye abundance and forage base.
		Burbot (N)	Wild	General	Consider adjusting harvest regulations to improve fishery. Manage harvest to support quality angling opportunity and maintain forage base. Continue monitoring population as it continues to become established.
		Brown trout	Wild	Wild/General	Maintain current population.
		Yellow perch, Black crappie	Wild	Wild/ General	Maintain current population. Continue monitoring. Consider habitat improvements if increase in numbers is deemed beneficial.
Habitat needs and activities: Explore adding shoreline/shallow water habitat structures to improve survival of forage fish, sport fish and crayfish.					

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Yellowstone River tributaries (Springdale to Clarks Fork) except Stillwater, Boulder, Clarks Fork	540 miles	Rainbow trout, Brown trout	Wild	General	Reduce abundance/prevent invasion where Yellowstone cutthroat trout are potentially impacted. Maintain sport fishery in other areas.
		Yellowstone cutthroat trout (N)	Wild	General	Allow harvest as part of district-wide combined trout limit. Continue to monitor and protect Lower Deer Creek population. Begin work on Upper Deer Creek cutthroat trout restoration. Consider establishing new populations where opportunities exist.
		Mountain whitefish(N)	Wild	General	Maintain current population.
		Brook trout	Wild	General	Reduce abundance/prevent invasion where Yellowstone cutthroat trout are potentially impacted. Manage for sport fishery with opportunity for high levels of harvest in other areas.
Habitat needs and activities: Improve habitat to support ecosystem function and fish production.					
Beartooth/Crazy Mountain Lakes	687 lakes and 9,318 acres	Yellowstone cutthroat trout (N)	Hatchery/ Wild	Put-Grow-and-Take	Maintain current populations. Monitor self-sustaining lakes to ensure population persistence. Continue stocking lakes currently stocked and managed for quality fish size quality. Adjust stocking rates as needed. Consider stocking in lakes containing rainbow and/or golden trout where genetic swamping would be consistent with Yellowstone cutthroat trout populations downstream in the drainage.
		Brook trout	Wild	General	Maintain current populations in most lakes. Reduce densities in lakes where it will benefit

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
		Rainbow trout	Wild	General	individual fish growth. Reduce abundance where Yellowstone cutthroat trout populations are potentially threatened.
		Golden trout	Hatchery/ Wild	Put-Grow-and-Take	Reduce abundance and genetic contributions in drainages where Yellowstone cutthroat trout restoration is a priority.
		Arctic grayling	Hatchery/ Wild	Put-Grow-and-Take	Maintain current populations in most lakes through stocking and natural reproduction. Reduce abundance in areas where priority Yellowstone cutthroat trout populations are potentially threatened.
All waters	3,200 miles of stream	Nongame species (native and non-native)	Wild	Conservation	Maintain current populations. Explore opportunities to provide angling opportunities in more lakes. Consider stocking lakes that contain other fish species to provide multi-species angling opportunity.
					Maintain connected populations, support ecosystem function.